

An arithmetic sequence has
 $a_{15} = 72$ and $a_{21} = 108$.
Find d and a_1 .

$$a_n = a_m + (n-m)d$$

$$n=21 \quad : \quad a_{21} = a_{15} + 6d$$

$$m=15 \quad : \quad 108 = 72 + 6d$$

$$36 = 6d$$

$$6 = d$$

$$a_n = a_m + (n-m)d$$

$$n=15 \quad : \quad a_{15} = a_1 + 14d$$

$$m=1$$

$$a_{15} = 72 \quad : \quad 72 = a_1 + 14(6)$$

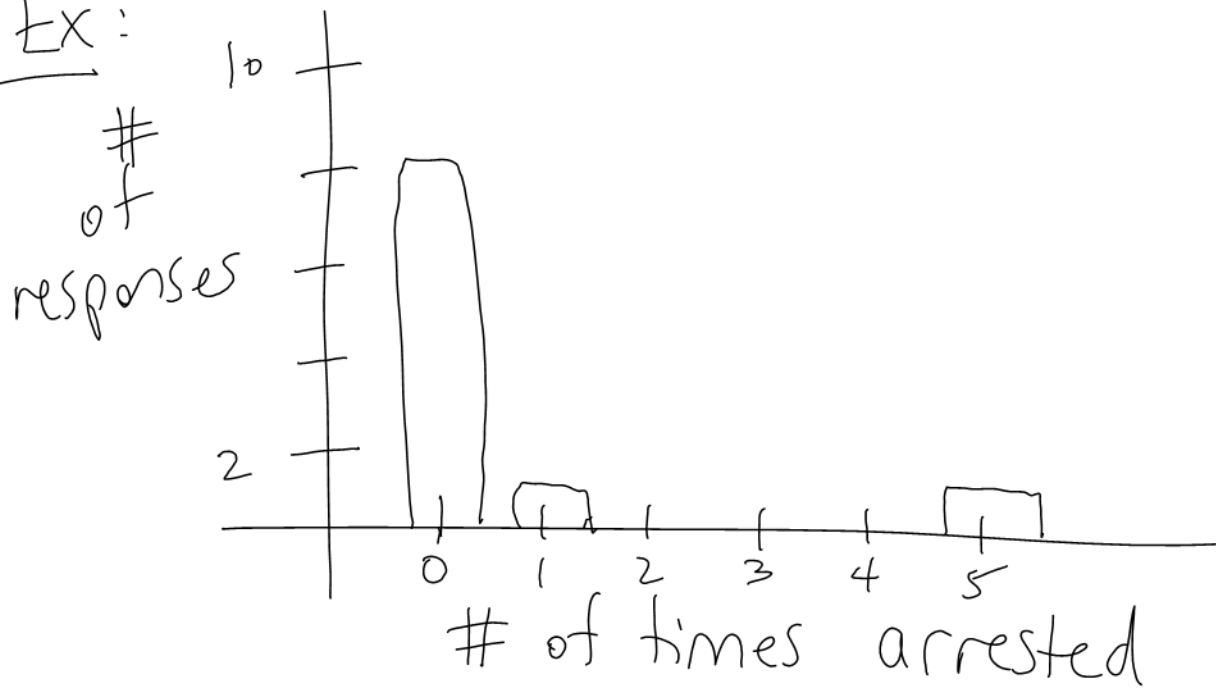
$$d = 6$$

$$72 = a_1 + 84$$

$$-12 = a_1$$

5.3 Histograms Cont'd

Ex:



a) Describe the shape

Unimodal Skewed Right

b) Any outliers?

5 is an outlier

c) Find the mode or the modes.

Mode: the value where the peak occurs

0 is the mode

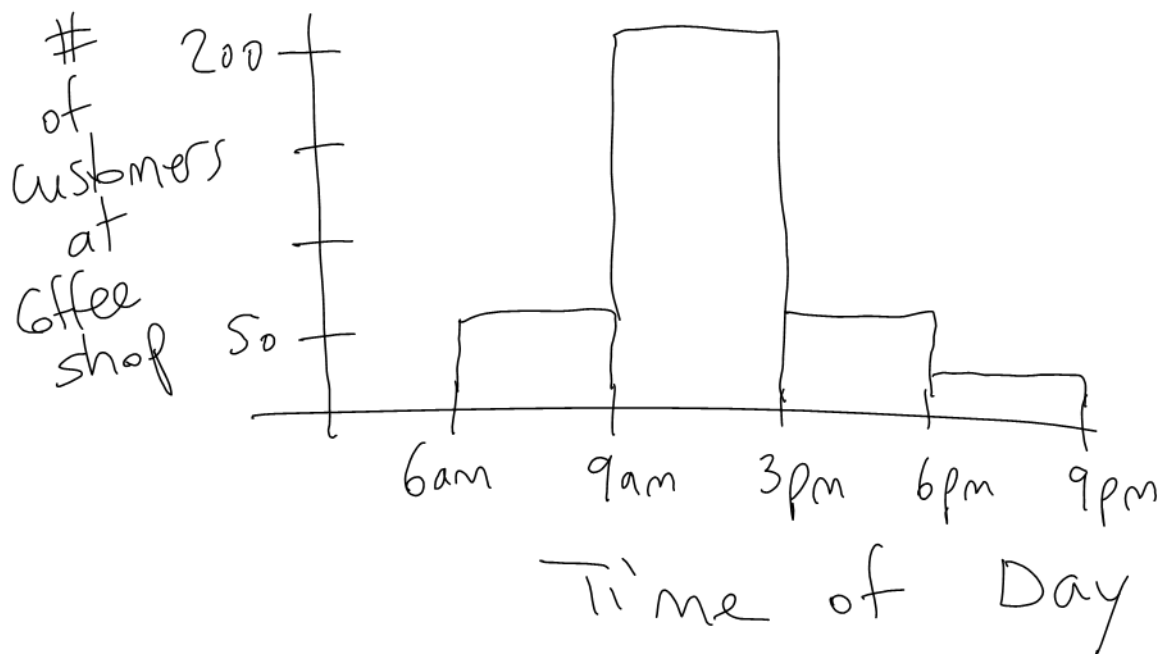
d) What % of people were arrested at least once?

$$\frac{2}{10} = 0.2 \text{ or } 20\%$$

5.4 Misleading Graphs

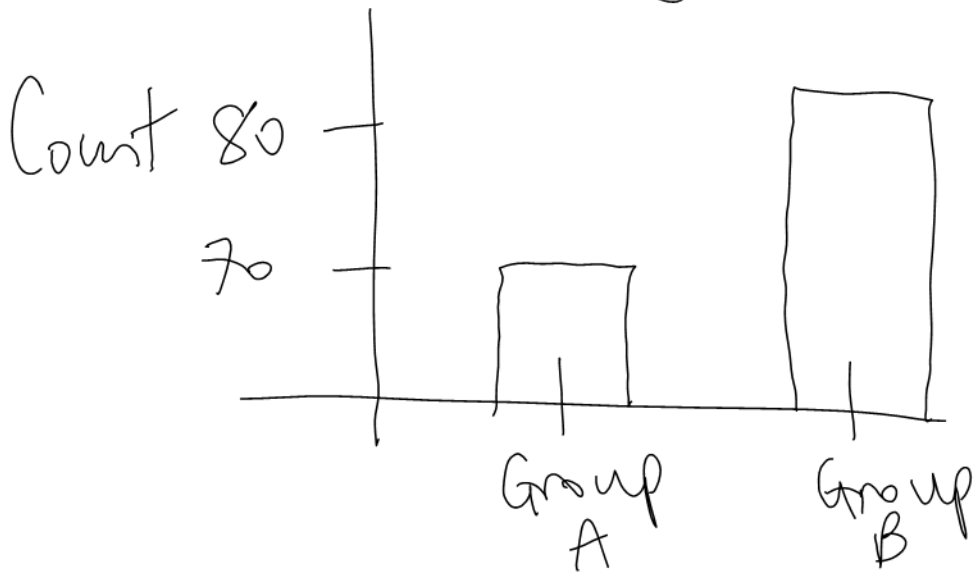
Common ways that graphs can mislead:

① Poorly-defined categories

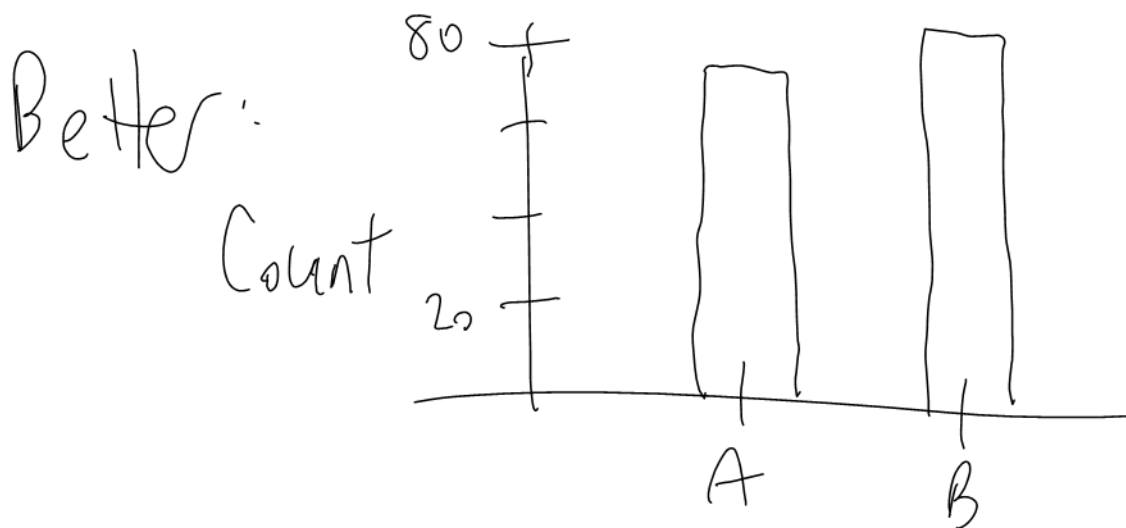


Misleading because not all bars represent 3-hour intervals.

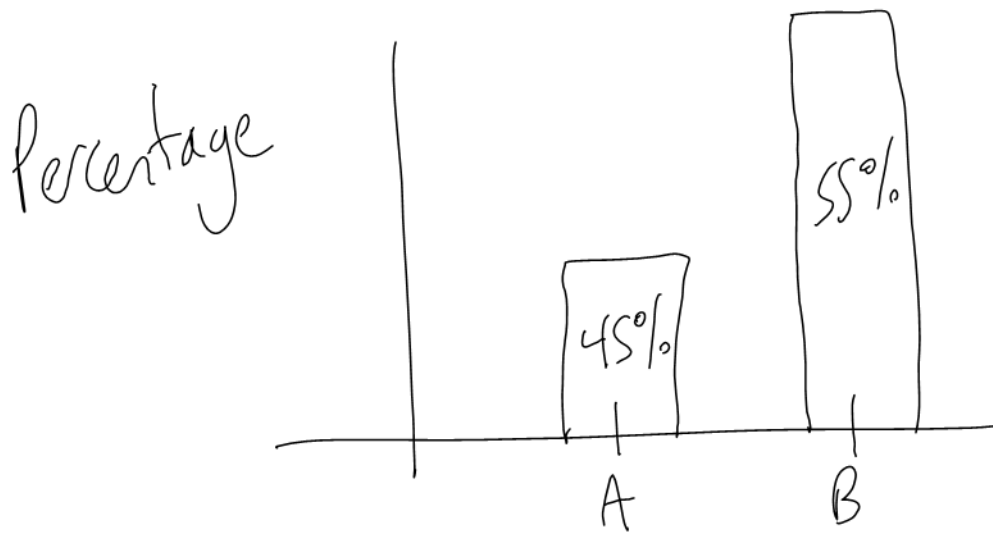
② Suppressing Zero



Misleading because y-axis does not start at 0.



③ Inconsistent Scale on y-axis

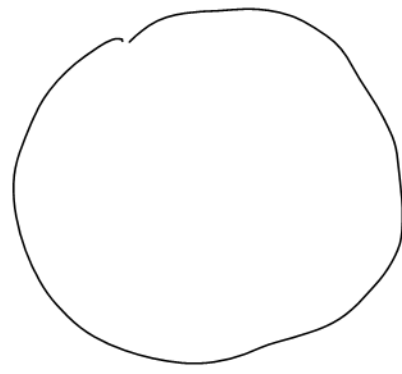


Misleading because y-axis
is not to scale.

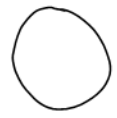
④ Pictographs

Pictographs use shape
instead of a vertical axis.

Total
Amount of
Student Debt (\$)
among Residents



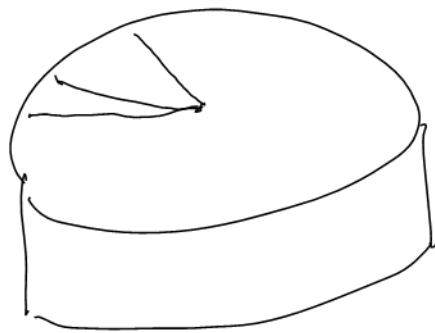
BC



Alberta

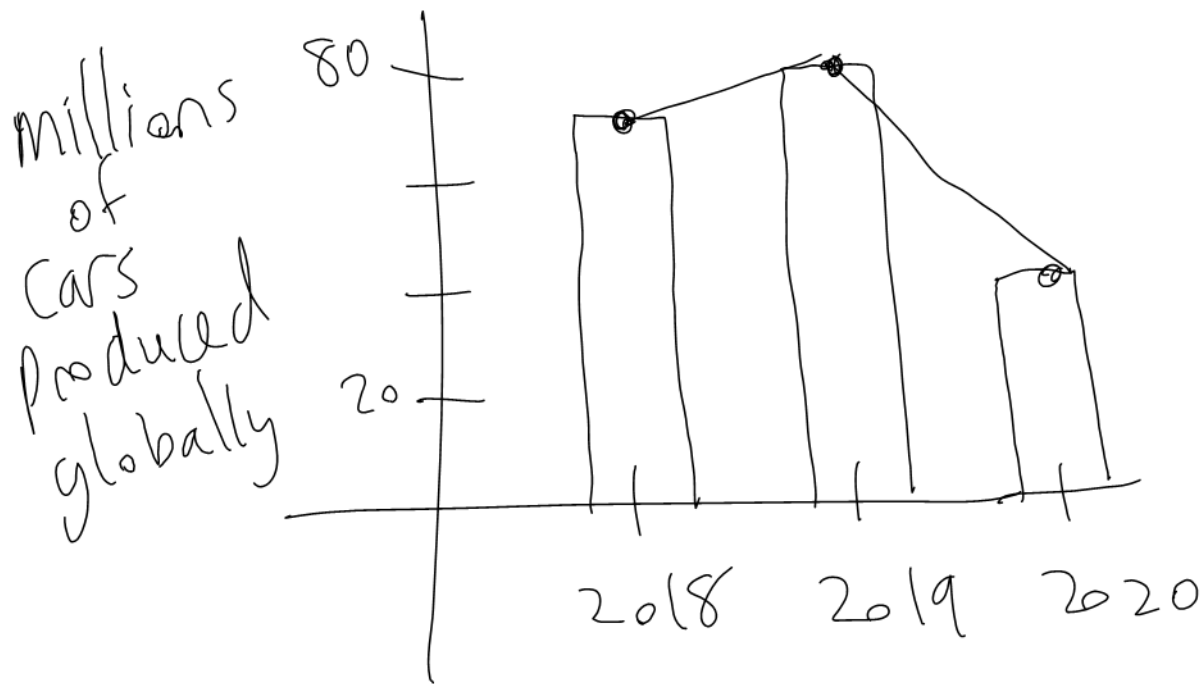
Misleading because we don't know whether to compare areas or diameters of the circles.

⑤ 3D Graphs



Misleading because it's hard to estimate the percentages.

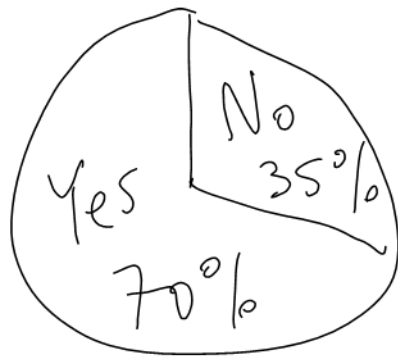
⑥ Cluttered



Misleading because it's a histogram and a line graph.
Just a line graph would be better.

⑦ Percentages Don't Add to 100%

Misleading



Do You Live in BC?

COMING UP:

Ch 6 Mean, Median

8 Probability

9 Normal Distribution

10 Confidence Intervals